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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,609	08/31/2001	Soren Riis	1030.40616X00	7485

			EXAMINER
20457 7590 06/22/2004			ALBERTALLI, BRIAN LOUIS

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ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/942,609	RIIS ET AL.
	Examiner	Art Unit	
	Brian L Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities:

a)   On page 4, line 14, "imply" should be –implies--.

b)   On page 4, line 15, "models" should be –model--.

c)   On page 4, line 28, "sequences" should be –sequence--.

d)   On page 5, line 16, "for" should be –a--.

Appropriate correction is required.

2.   The listing of references in the specification is not a proper information disclosure

statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other

information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the

list may not be incorporated into the specification but must be submitted in a separate

paper." Therefore, unless the references have been cited by the examiner on form

PTO-892, they have not been considered.

3.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

The following title is suggested: *Speech Recognition System Using Text Derived*

Recognition Models.

4.   The abstract of the disclosure is objected to because "Fig. 4" should be removed.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1, 3, 4, 7, 9, and 12 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Wheatley et al. (U.S. Patent 5,212,730).

In regard to claim 1, Wheatley et al. discloses a method of recognizing speech

using text derived recognition models.

Text is provided from a text database (Fig. 1, element 12) (column 4, lines 8-16).

An acoustic input (24) accepts spoken input (column 4, lines 55-57).

Sequences of phoneme symbols based on the text input are generated by a text

to phoneme module (Boltzmann machine 13, column 4, lnies 17-25).

Pronunciations are produced in response to the sequences of phoneme symbols

(HMM recognition model generator (16) generates HMM recognition models based on

phonetic models derived from a speech database (18, column 4, lines 44-54)).

The pronunciations are compared with the acoustic input in order to find a match

(by HMM recognition engine 26, column 4 lines 58-68).

7.   Wheatley et al. further discloses that the method generates several phonetic

sequences corresponding to different pronunciations (column 4, lines 26-36). Wheatley

et al. does not disclose that the phoneme symbols are multilingual phoneme symbols.

The use of the International Phonetic Alphabet is very well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wheatley et al. so that the different pronunciations generated were representative of pronunciations in a plurality of languages, so that the method could be used in different countries.

8.   In regard to claims 4 and 9, Wheatley et al. discloses a system that has:

a text database (Fig. 1, element 14) for providing text input;

a transducer means (24) for receiving an acoustic input;

a text to phoneme module (13) that generates sequences of phoneme signals;

a pronunciation lexicon module (16) that generates pronunciations in response to the sequences of phoneme signals;

and a recognizer (26) for comparing the pronunciations generated by the pronunciation lexicon module (16) with the acoustic input.

9.   Wheatley et al. further discloses that generates several phonetic sequences corresponding to different pronunciations (column 4, lines 26-36). Wheatley et al. does not disclose that the phoneme symbols are multilingual phoneme symbols. The use of the International Phonetic Alphabet is very well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wheatley et al. so that the different pronunciations generated were representative of pronunciations in a plurality of languages, so that the method could be used in different countries.

10.   Wheatley et al. does not disclose the system is implemented in a communication terminal. It would have been obvious to one of ordinary skill in the art at the time of invention to implement the system in a communication terminal, in order to communicate to another communication terminal without using any keystrokes (e.g. the system could be used for hands free dialing).

11.   In regard to claims 3, 7, and 12, Wheatley et al. discloses that the text input is derived from user entered text strings (column 4, lines 8-11).

12.   Claims 2, 5-6, 8, 10-11, and13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley et al., as applied to claims 1, 4, and 9, above, in view of Karaali et al. (U.S. Patent 5,930,754), and further in view of Kuhn et al. (U.S. Patent 6,029,132).

13.   In regard to claims 2, 5, and 10, Wheatley et al. does not disclose that the text input is processed letter by letter and that a neural network provides an estimate of the posterior probabilities of the different phonemes of the user.

14.   Karaali et al. discloses a system for phonetic generation from text information using a neural network (Fig 20, 2004).

15.   It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wheatley et al. to use the neural network method of converting text to phonemes, as disclosed by Karaali et al., in order to eliminate the need to store

pronunciation information, thereby saving storage space, as taught by Karaali et al.
(column 18, lines 42-46).

16.   Wheatley et al. and Karaali et al. do not disclose that the text is processed letter
by letter.

17.   Kuhn et al. discloses a method in which a text input that is to be converted to
speech is processed letter by letter to generate the probabilities of different phonemes
for each letter (Fig. 2 and column 3, lines 17-25).

18.   It would have been obvious to one of ordinary skill in the art at the time of
invention to further modify Wheatly et al. and Karaali et al. so that the neural network
used the probabilities generated in Kuhn et al., in order to produce a variety of
pronunciations so that a previously unused word would be recognized.

19.   In regard to claim 6 and 11, Karaali et al. discloses that the neural network is a
feed-forward multi layer neural network (column 17, lines 26-33 and column 19, lines
41-42).

20.   In regard to claim 8 and 13, neither Wheatly et al., Karaali et al., or Kuhn et al.
disclose that the database containing user entered text strings is an electronic
phonebook including phone numbers and name labels.   It would have been obvious to
one of ordinary skill in the art at the time of invention to make the text database an
electronic phonebook database so one could find phone numbers of people quickly and
easily via a speech command, without using text entry.

Conclusion

21.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Karaali et al. (U.S. Patent 5,668,926) discloses an additional

system that converts text to speech using a neural network. D'hoore et al. (U.S. Patent

6,085,160) discloses a language independent recognition system that maps multiple

language speech databases to one phoneme database. Mozer et al. (U.S. Patent

6,021,387) discloses a speech recognition system that utilizes a neural network to

calculate recognition probabilities. Shaw et al. (U.S. Patent 6,363,342) discloses a

system for developing a pronunciation dictionary.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian L Albertalli whose telephone number is (703) 305-

1817. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Talivaldis Smits can be reached on (703) 305-3011. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

22.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

BLA 6/7/04

TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER